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ABSTRACT

This study examines Asian American middle school students' classroom behaviors in mathematics using systematic classroom observation techniques. The study explores questions related to classroom behaviors in terms of interactions with teachers, classroom settings, activities, and manners; differences in classroom behaviors between boys and girls and between students at different grade levels; and significant differences in classroom behaviors as a result of the interaction of gender and grade level. The data for this study were obtained using the Classroom Observation Schedule with Asian American middle school students (N=463). Individual students were observed with regard to their interactions with teachers and/or peers, the settings in which the observed behaviors occurred, the types of materials the students were using, and the specific types of activities in which they engaged. The results indicate that Asian American students in this particular school district spent slightly over half of the time interacting with their teachers for instructional purposes. They also spent a large portion of their time either watching, listening, or working on written assignments. Contains 42 references. (DDR)

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Classroom Behaviors of Asian American Students in Mathematics

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Paper to be presented at the Annual meeting of

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Chicago, March 1997

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There have been a number of studies that documented Asian American students' higher achievement in mathematics as compared to students from other ethnic groups (Sue & Okazaki, 1990; Tsang & Wing, 1985). Some of these studies attributed Asian American students' high achievement to culture and heritage, including their family life style, home language, and the value that these students shared with their parents (California State Department of Education, 1986; Obgu & Matute-Bianchi, 1986; Karkhanis & Tsai, 1988; Kennedy & Park, 1994; Schneider & Lee; 1990). Some examined learning environments of Asian American students and the expectation they share with teachers and peers (Huang & Waxman, 1995; Huang, 1996; Schneider & Lee; 1990). Others explored the relationship of these students' academic success to gender, socio-economic status, and/or other factors (Dolly, 1988; Peng, 1995; Whang & Hancock, 1994).

Little research, however, has investigated and associated Asian American students' academic achievement with their cognitive learning behavior in school, particularly in mathematics. Asian American students have been stereotyped and frequently described as "smart and quite" in the classroom. They have been found to be particularly "good" in mathematics and teachers often expect them to do "good" in it (Pang, 1990). Yet in reality, a recent study based on the National Center for Education Statistics database revealed that about 24% of eighth-grade Asian Americans failed to achieve basic achievement levels in mathematics (Huang, 1996). Furthermore, tenth grade Asian American students' dropout rate has more than doubled between 1980-82 and 1990-92 (McMillen, Kaufman, & Whitener, 1994, p. 41). The inaccurate and biased portray can greatly affect Asian American students' academic self-concept and school experience. Little is known about the actual classroom process of Asian American students in mathematics. Since there are research findings suggesting that classroom processes influence student outcomes (Fraser, Walberg, Welch, & Hattie, 1987; Teddlie, Kirby, & Stringfield, 1989; Weishew & Peng, 1993), it is necessary to provide an objective and

accurate account of Asian American students' behavior in their mathematics classrooms in order to explain Asian American students' achievement in mathematics. One of the best approaches to investigate classroom processes is to engage in classroom observation research.

Classroom observation research has evolved in the last three decades as an important research paradigm for the improvement of mathematics education (Kulm, 1993; McMullen, 1993; Pechman, 1991). Many studies have used systematic classroom observation techniques in order to investigate effective teaching and learning at the elementary, middle, and high school levels (Anderson & Burns, 1989; Brophy & Good, 1986; Stallings & Mohlman, 1988; Waxman, 1995). Medlay (1982) defines systematic classroom observation as a "scheme that specifies both the events that the observer is to record and the procedure to be used in recording them (p. 1982)." Among the various techniques, the most widely used observation procedure for educational research is based on interactive coding systems that allow the observer to record specific and easy identifiable behaviors that students and teachers do during a given time interval (Stodolsky, 1990).

Although there have been a few criticisms and cautions related to the use of structured observation techniques (Evertson & Green, 1986; Galton, 1988), conducting classroom observation research with these methods on Asian American students can (a) permit researchers to study the processes of education in naturalistic settings, (b) provide more detailed and precise evidence than other data sources, (c) be used to stimulate and plan changes as well as verify the changes occurred (Anderson & Burns, 1989; Coker, 1988), and (d) permit investigation of instructional inequities for different groups of students in order to implement effective practices that reduce achievement gaps (ETS, 1991; Hart, 1990, Ramey, 1992). In addition, the descriptions of classroom instructional interactions have been found to enable professional assessment of classroom processes that lead to improved understanding and better models for teaching (Good & Biddle,

1988; Pechman, 1991; Stallings & Freiberg, 1991). Many of the observational studies have consistently found that a number of classroom behaviors are significantly related to students' academic achievement (Brophy & Good, 1986; Walberg, 1986, 1991; Walker de Felix, Waxman, Paige, & Huang, 1993). Several dimensions of classroom behaviors such as interaction with teachers, student's time on task, student's disruptive behavior, and small group instruction have been found to be predictors of learning outcomes in mathematics (Hart, 1990). Nonetheless, very few studies have focused on Asian American students when using systematic classroom observation techniques to examine instructional practices and student behaviors in secondary schools.

The purpose of this study is to investigate Asian American middle school students' classroom behaviors in mathematics. More specifically, this study addresses three research questions:

(1) What are Asian American students' classroom behaviors in terms of their interactions with teachers, classroom settings, activities, and manners in middle school mathematics classes?

(2) Are there significant differences in these students' classroom behaviors between boys and girls, and between students at different grade levels?

(3) Are there significant differences in these students' classroom behaviors as a result of the interaction of gender and grade level?

Method

Subjects

This study was conducted in a multi-cultural school district located in the vicinity of a major metropolitan city in the southern United States. The school district was selected because of its relatively large enrollment of Asian American students. About 23% of the students in the school district were Asian American, 32% of them were white, 26% were black, and 20% were Hispanic. There is a strong academic orientation in this

district. Nearly two thirds of its students attend colleges, and only 6% of them drop out of schools. There is no tracking in school, however, and students are heterogeneously grouped for mathematics. The overall mathematics achievement of middle schools in the school district was slightly above national norm.

A total of 463 Asian American students from six middle schools was observed during their regular mathematics classes. The gender distribution among these students was nearly equal: 49.7% boys and 50.3% girls. About 39% of the students in the study were sixth graders, 29% were seventh graders, and 32% were eighth graders. Table 1 displays the frequency distribution of Asian American students being observed by grade and gender.

Nearly 48% of these Asian American students were born in the United States, 13.5% in Vietnam, 11% in Pakistan, 6.5% in India, 5.5% in Philippine, 5% in China, 2% in Taiwan, and the rests' 14.5% in Southeast Asian and other countries. About 75% of them spoke a language other than English before they started schools. A majority of these students came from lower to upper middle income families. They scored higher than students from other ethnic groups on state-wide standardized achievement tests in mathematics and on the district-administered Four-Step Problem Solving Test (Hoffman, 1986).

Instrument

The instrument used in the present study was the Classroom Observation Schedule (COS) (Waxman, Wang, Lindvall, & Anderson, 1988). It is a systematic observation schedule designed to document observed student behaviors in the context of ongoing classroom instructional-learning processes. Individual students are observed with reference to (a) their interactions with teachers and/or peers and the purpose of such interactions, (b) the settings in which observed behaviors occur, (c) the types of materials with which they are working, and (d) the specific types of activities in which they engage. This instrument is grounded in direct observation and focus on student learning rather than

the teacher teaching. This observation instrument has been found to be reliable and valid in previous studies (Knight & Waxman, 1991; Huang & Waxman, 1993), and in the present study the inter-rater reliability (Cohen's Kappa) was .98.

Procedures

The research group obtained permission from the school district to conduct privileged observation of mathematics classroom processes in the six middle schools. Trained research staff observed mathematics classes in the Fall and the Spring semesters. Teachers and students were notified of the weeks when observers would be in their school, but they were not aware of the specific day nor period the observer would be in their classroom. Arrangements were made to observe regular classroom instruction and classes devoted to special activities (e. g. standardized tests, computer laboratory, etc.) were avoided. A stratified sampling technique was used to include an equal number of boys and girls in the sample. Approximately four Asian American students were observed from each class. Each student was observed for 10 intervals (each interval was 30 seconds) during the 45 minute data collection period.

Descriptive statistics were used to report the mean percentage of time a specific behavior was observed during a data collection period. A series of two-way multivariate analyses of variance (MANOVA) were performed to determine (a) whether there are significant differences in classroom behaviors by students' gender and grade level, and (b) whether there are any significant interaction effects by gender and grade level.

Results

Table 2 displays the overall findings from the classroom observation of Asian American Students in middle school mathematics classes. The results are presented in the mean percentage of time the specific behavior was observed. In the middle school mathematics classes, the predominant setting was whole-class instruction, accounting for 63% of the time being observed, followed by individual or independent work (31%). In

these settings, the students interacted with their teachers about 52% of the time for instructional purposes and nearly 9% of the time for managerial purposes. They interacted with other students about 8% of the time. The most prevalent activity they were observed was watching and listening, accounting for 43% of the time being observed. It is followed by working on written assignment (25%), talking (10%), and taking quizzes (7%). They were on task about 84% of the time observed, distracted nearly 8% of the time, and disruptive about 2% of the time.

The standard deviations are relatively large, suggesting that there is a great variance among individual student's behaviors.

A series of two-way MANOVA results shows that there were significant differences in Asian American students' classroom behaviors by grade level in two out of the four dimensions of classroom behaviors: (a) interaction, $F(10,906)=3.19$, $p<.001$, and (b) manner, $F(10, 906)=4.55$, $p<.0001$. There were no significant differences in any of the four dimensions of classroom behaviors between boys and girls. Nor was there a significant interaction effect of gender and grade on any dimensions of student classroom behaviors.

Follow-up univariate tests (ANOVA) of classroom interactions indicate that there were significant differences between students at the sixth-, seventh-, and eighth-grades on the variables of (a) interacting with teachers for instructional purpose, (b) interacting with teachers for managerial purpose, and (c) independent work. Post hoc multiple comparisons further reveal that eighth-grade students spent more time interacting with teachers instructionally and less time managerially than sixth- and seventh-grade students. Eighth-grade students also spent less time doing independent work than sixth- and seventh-grade students.

Follow-up univariate tests of classroom manners indicate that students at the three grade levels differed significantly in four indicators: (a) on task, (b) waiting for teacher's help, (c) disruptive, and (d) distracted behaviors. Post hoc multiple comparisons further

reveal that sixth- and seventh-grade students were found to be more on task and less disruptive than eighth-grade students. On the other hand, eighth-grade students were found to be more frequently distracted and less frequently waiting for teacher's help than sixth grade students.

Table 3 displays the ANOVA results comparing student behavior at different grade levels.

Discussion

The results of the present study reveal that overall, Asian American students in these middle school mathematics classes were generally participated in teacher-directed instruction. The prevailing classroom setting was whole group instruction, whereas paired, small or medium-sized groups were seldom utilized. This finding is consistent with Good's research (1990a, 1990b) that assessed teacher belief and practices of small-group mathematics instruction and found that only 5% of the teachers used two or more groups in which students were encouraged to work cooperatively.

Contrary to the common perception that Asian American students are passive and quiet in class, these students spent slightly over half of the time interacting with their teachers for instructional purposes. This is about the same level as students from other ethnic groups found in a previous study (Huang, 1993). Nonetheless, there was almost no interaction between Asian American students and teachers for personal purpose (e.g., How do you feel? You look great today.) As for types of activities, Asian American students engaged a large proportion of time either watching, listening, or working on written assignments, and very little time doing learning games, coloring, drawing, painting, working on manipulative materials, tutoring peers, or presenting.

The overall percentage (84%) of time that students were found to be on task was relatively low, compared with findings from other similar studies of urban school students (Waxman, Freiberg, Huang, & Wang, 1993). This is especially troublesome given that the mathematics achievement of the targeted population was above the local and national

averages. A prior study, however, compared the targeted population with their classmates of other ethnicity indicated that these Asian American students were more on task and less distracted than their classmates from other ethnic groups (Huang, 1993). This might be one explanation why Asian American students generally have higher mathematics achievement than their counterparts.

The results of this study also indicate that there were grade-related differences in Asian American students' classroom interaction and manner in mathematics. The higher the grade level, the more instructional interaction and disruptive behaviors were observed. Plausible explanations for the differences may be that there were differences in variables such as mathematics content, teachers' expertise, and student and teacher attitudes. Further examination of content areas reveals that there was a significant difference in the content area covered by mathematics classes at the three grade levels.
At the sixth-grade level, students spent the largest proportion of time (40%) learning Fraction and Geometry; at the seventh-grade level, students spent the largest proportion of time (30%) learning Geometry; and at the eighth-grade level, students spent the largest proportion of time (45%) learning Pre-algebra. In other words, mathematics contents increase in difficulty and complexity as the grade level moves up. Increasing difficulty mathematics content may have psychological influence on students' classroom behaviors.

No statistically significant differences were found in classroom setting or types of activities by grade level. In other words, mathematics teachers at the sixth-, seventh-, and eighth-grade levels used mainly the whole class setting for classroom instruction. Students at all the three grade levels engaged mostly in passive activities like watching, listening, or working on written assignments.

There were no significant differences between Asian American boys and girls in any dimensions of mathematics classroom behaviors. In other word, gender is not a factor that discriminates Asian American students' classroom behaviors. A comparison of course

grades and the Four-Step Problem Solving Test scores further showed that there was also no significant difference in mathematics achievement between these Asian American boys and girls in the middle schools.

There are some implications that may be drawn from the findings of this study. First, peer group support was not emphasized in instructional and learning processes in mathematics. Students were rarely observed in paired or small group, or engaged in peer tutoring activities. Considering over 50% of these Asian American students were born in foreign countries, and about 75% of them spoke a language other than English before they started school, many Asian American students have found themselves with increasing feeling of marginality or at cultural odds with the dominant society (Pang, 1990). These students need the opportunity to collaborate or seek help and support from their classmates and teachers to be more assimilated into the mainstream. Based on the evidence shown in this study, there appears to be a lack of such a sociopsychological environment and affective substance. Teachers need to foster support networks and social identity among Asian American students.

Secondly, content specific attitudes and behaviors are obvious in mathematics classroom learning contexts. When the content area becomes more difficult and advanced, anxiety and frustration among students increase. This may explain partially why higher grade students are more frequently off task and distracted as well as disruptive than lower grade students. This may also imply that teachers need to be adaptive to different content areas and apply more interesting and enriching pedagogy at higher grade level, such as allowing more student-centered than teacher-directed instruction to help students gain more positive learning experience.

Third, the present study contributes to a more comprehensive body of knowledge about Asian American education by developing an empirical profile of these students' classroom interaction in mathematics. In addition, it provides some empirical feedback to secondary school mathematics teachers to help teachers understand their current

instructional strengths and weaknesses, particularly in working with Asian American students. Teachers can compare an individual summary of classroom processes in their classrooms and schools with the average of all middle schools in the school district. Feedback from these profiles can be used to stimulate dialogue and discussion to improve classroom instructional process in various content areas at different grade levels.

Although the findings from the present study have some important educational implications, future research needs to examine Asian American students' classroom behaviors (a) in other subject areas such as reading, science, and social science, (b) at elementary and high school levels to determine whether this prevalent classroom behavior pattern sustains across different subject areas and school levels, and (c) by using other observational instruments such as teacher classroom roles and high-inference observations to verify the findings from observing students' behaviors. Furthermore, qualitative research using interview, shadowing techniques, case studies, and so forth needs to be conducted in order to provide more in-depth insights of what and how Asian American students are really doing in school.

References

Anderson, L. W., & Burns, R. B. (1989). Research in classrooms: The study of teachers, teaching, and instruction. Oxford, England: Pergamon.

Bannai, H., & Cohen, D. A. (1985). The passive-methodical image of Asian American students in the school system. Sociology and Social Research, 70(1), 79-81.

Bradby, D., Owings, J., & Quinn, P. (1992). Language characteristics and academic achievement: A look at Asian and Hispanic eighth graders in NELS:88. (Statistical analysis report, NCES 92-479). Washington, DC: U. S. Department of Education, National Center for Education Statistics.

Brophy, J. E., & Good, T. L. (1986). Teacher behavior and student achievement. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 328-375). New York: Macmillan.

D'Ailly, H. H. (1992). Asian mathematics superiority: A search for explanations. Educational Psychologist, 27, 243-261.

Dossey, J. A., Mullis, V. S., Lindquist, M. M., & Chambers, D. L. (1988). The mathematics report card: Are we measuring up? Trends and achievement based on the 1986 national assessment. (NAEP Report No. 17-M-01). Princeton, NJ: Educational Testing Service.

Evertson, C. M., & Green, J. L. (1986). Observation as inquiry and method. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 162-213). New York: MacMillan.

Fraser, B. J., Walberg, H. J., Welch, W. W., & Hattie, J. A. (1987). Syntheses of educational productivity research. International Journal of Educational Research, 11, 145-252.

Galton, M. (1988). Structured observation. In M. J. Dunkin (Ed.), The international encyclopedia of teaching and teacher education (pp. 142-147). Oxford, England: Pergamon.

Golden, J. (1990). The acculturation of Korean American High School Students. In R. Endo & S. Chou (Eds.). Contemporary Perspectives on Asian and Pacific American Education (pp. 96-116). South El Monte, CA: Pacific Asia Press.

Good, T. L. (1990a). An observation study of small-group mathematics instruction in elementary schools. American Educational Research Journal, 27, 755-782.

Good, T. L. (1990b). Teachers' beliefs about small-group instruction in elementary school mathematics. Journal for Research in Mathematics Education, 21, 2-15

Good, T. L., & Biddle, B. (1988). Research and the improvement of mathematics instruction: The need for observational resources. In D. Grouws &T. Cooney (Eds.), Research agenda for mathematics education: Effective mathematics teaching (pp. 114-142). Reston, VA: National Council of Teachers of Mathematics.

Hart, L. E. (1990, April). Teacher-student interaction and achievement in a seventh-grade mathematics class. Paper presented at the annual meeting of the American Educational Research Association, Boston.

Hoffman, P. S. (1986). Construction and validation of a testing instrument to measure problem solving skills of students. Unpublished doctoral dissertation. Temple University, Philadelphia.

Huang, S. L. (1995). Effects of home and school environment on the academic achievement of eighth-grade Asian American middle school students. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Huang, S. L., & Waxman, H. C. (1996). Comparing learning environment of resilient and non-resilient Asian American students. Paper presented at the annual meeting of the American Educational Research Association, New York.

Huang, S. L., & Waxman, H. C. (1993). Grade, sex and ethnic-related differences among middle-school students' classroom behavior in mathematics. Paper presented at the annual meeting of the American Educational Research Association, Atlanta.

Karkhanis, S., & Tsai, B. L. (Eds.) (1988, July). Educational excellence of Asian Americans: Myth or reality? Paper presented at the American Library Association Convention, New Orleans.

Kennedy, E. & Park, H. S. (1994). Home languages as a predictor of academic achievement: A comparative study of Mexican- and Asian-American youth. The Journal of Research and Development in Education, 27(3),188-194.

Knight, S. L., & Waxman, H. C. (1991). Students' cognition and classroom instruction. In H. C. Waxman & H. J. Walberg (Eds.). Effective teaching: current research (pp. 239-255). Berkeley, CA: McCutchan.

Kulm, G. (1993). A theory of classroom assessment and teacher practice in mathematics. Paper presented at the American Library Association Convention, Atlanta.

McMullen, B. G. (1993). Quantitative analysis of effects in the classroom. Paper presented at the American Library Association Convention, Atlanta.

Marrett, C. B. (1985). Teacher goals and race/sex equity in mathematics and science education: Final report. Madison, WI: Wisconsin Center for Education Research.

Medley, D. M. (1982). Systematic observation. In H. E. Mitzel (Ed.), Encyclopedia of Educational research (5th ed., pp. 1841-1851). New York: The Free Press.

Nairn, K. (1991). Geography and gender in the secondary school classroom. New Zealand Journal of Geography, 91, 14-15.

Pang, V. O. (1990). Asian American children: A diverse population. The Educational Forum, 55, 49-65.

Pechman, E. M. (1991). Modeling mathematics teaching excellence. Implementation guide. Raleigh: North Carolina State university. Center for research in mathematics and science education.

Peng, S. S., Owings, J. A., & Fetters, W. B. (1984). School experience and performance of Asian American high school students. Washington, DC: U. S. Department of Education, Office of Educational Research and Improvement.

Remey, M. (1992). Classroom characteristics related to ethnic achievement gap reduction. Paper presented at the American Educational Research Association, San Francisco.

Schneider, B., & Lee, Y. (1990). A model for academic success: The school and home environment of East Asian students. Anthropology and Education Quarterly, 21, 358-377.

Stallings, J. A., & Mohlman, G. G. (1988). Classroom observation techniques. In J. P. Keeves (Ed.), Educational research, methodology, and measurement: An International handbook (pp. 469-474). Oxford, England: Pergamon.

Stodolsky, S. S. (1990). Classroom observation. In J. Millman & L. Darling-Hammond (Eds.), The new handbook of teacher evaluation: Assessing elementary and secondary school teachers (pp. 175-190). Newbury Park, CA: Sage.

Stodolsky, S. S. (1988). The subject matters. Classroom activity in math and social studies. Chicago: The University of Chicago Press.

Sue, S., & Okazaki, S. (1990). Asian-American educational achievements: A phenomenon in search of an explanation. American Psychologist, 45, 913-920.

Sue, S., & Okazaki, S. (1991). Explanations for Asian-American achievement: A reply. American Psychologist, 46, 878-880.

Teddlie, C., Kirby, P. C., & Stringfield, S. (1989). Effective versus ineffective schools: observable differences in the classroom. American Journal of Education, 97, 221-236.

Tsang, S. L., & Wing, L. C. (1985). Beyond Angel Island: The education of Asian Americans (ERIC/CUE Urban Diversity Series, No. 90). New York: ERIC Clearing House on Urban education.

Walberg, H. J. (1986). Synthesis of research on teaching. In M. Wittrock (Ed.), Handbook of research on teaching (3rd Ed., pp. 214-229). New York: MacMillan.

Walberg, H. J. (1991). Productive teaching and instruction: Assessing the knowledge base. In H. C. Waxman & H. J. Walberg (Eds.), Effective teaching: Current research (pp. 33-62). Berkeley, CA: McCutchan.

Waxman, H. C. (1995). Classroom observations of effective teaching. In A. C. Ornstein (Ed.), Teaching: Theory into practice (pp. 76-93). Needham Heights, MA: Allyn & Bacon.

Waxman, H. C., Wang, M. C., Lindvall, M., & Anderson, K. A. (1988). Classroom observation schedule technical manual. Pittsburgh, PA: University of Pittsburgh, Learning Research and Development Center.

Table 1.

Frequency Distribution of Asian American Students by Grade and Gender

Gender	Grade Level			
	6th grade	7th grade	8th grade	Total
Boys	87	69	74	230
Girls	94	66	73	233
Total	181	135	147	463

Table 2.

Asian American Students' Classroom Behaviors in Mathematics

Variables	All Students Observed (n=463) M	SD
Interaction		
No interaction/Independence	30.03	30.03
Interaction with teacher-instructional	51.68	31.49
Interaction with teacher-managerial	8.74	11.92
Interaction with other-personal	0.13	1.29
Interaction with students	8.27	16.21
Interaction with others	1.15	8.79
Setting		
Whole Class	62.73	33.05
Individual	31.58	32.74
Paired	1.84	7.89
Small Group	2.49	12.06
Others	0.92	5.94
Activity type[a]		
Working on written assignments	24.55	22.03
Taking quizzes, tests	7.45	21.66
Interacting/talking	9.81	13.21
Watching or listening	43.21	25.83
Reading	1.67	5.84
Getting/returning materials	3.99	6.76
Doing activities/learning games	1.55	6.10
Coloring, drawing, painting, etc.	0.85	4.73
Working with manipulative materials/equip.	1.07	5.09
Presenting/acting	0.12	1.02
Tutoring peers	0.18	1.62
No activities	3.00	9.14
Others	2.56	9.39
Manner		
On task	84.31	23.02
Preparation (getting materials, etc.)	3.13	8.25
Waiting for teacher's help	1.76	5.46
Distracted	7.62	15.80
Disruptive	1.89	7.68

Note: [a] More than one activity may be coded during one observation.

Table 3.

Comparison of Asian American Students' Classroom Behaviors by Grade Level

Variables	MANOVA df	MANOVA F	6th Grade (n=181) M	6th Grade (n=181) SD	7th Grade (n=135) M	7th Grade (n=135) SD	8th Grade (n=147) M	8th Grade (n=147) SD	ANOVA F
Interaction	10,906	3.19***							
No interaction/independence			33.97a	31.07	31.44a	29.81	23.86b	28.09	4.90**
With teacher-instruction			47.25b	30.49	50.69b	30.21	58.03a	32.99	5.01**
With teacher-managerial			9.49a	13.16	10.88a	12.19	5.85b	9.28	7.04**
With other-personal			0.14	1.31	0.09	1.08	0.17	1.45	0.12
With students			8.25	16.24	6.45	13.27	9.96	18.40	1.65
With others			0.90	6.85	0.44	3.05	2.13	13.28	1.44
Setting	10,906	1.18							
Whole Class			61.32	32.38	60.75	34.11	66.30	32.80	
Individual			32.18	32.30	34.90	33.83	27.81	32.10	
Paired			2.10	8.44	2.14	9.63	1.24	4.84	
Small Group			3.57	15.59	1.66	9.62	1.94	8.57	
Others			0.83	6.80	0.55	3.69	2.71	6.51	
Activity Type[a]	24,892	1.26							
Working on written assignments			25.34	21.97	26.91	22.74	21.42	21.22	
Taking quizzes, tests			7.67	22.75	6.30	18.41	8.22	23.10	
Interacting/talking			8.51	10.13	9.94	13.95	11.29	15.59	
Watching or listening			43.68	25.51	40.77	23.13	44.87	28.43	
Reading			1.16	5.13	1.68	4.93	2.27	7.22	
Getting/returning materials			4.45	7.05	4.26	6.96	3.16	6.15	
Doing activities/ games			1.86	6.73	2.11	7.24	0.64	3.55	
Coloring, drawing, painting			0.68	3.67	1.22	5.15	0.73	5.46	
Working with manipulat. matrs.			0.88	4.10	1.59	6.12	0.83	5.16	
Presenting/acting			0.09	0.84	0.23	1.47	0.07	0.82	
Tutoring peers			0.25	1.93	0.19	1.60	0.10	1.18	
No activities			2.41	7.88	2.71	9.23	3.98	10.40	
Others			3.03	10.83	2.10	7.19	2.41	9.30	
Manner	10,906	4.55***							
On task			87.64a	17.19	85.67a	21.77	78.95b	28.87	6.23**
Preparation (getting matrs, et)			4.07	10.38	2.69	6.55	2.38	6.44	1.91
Waiting for teacher's help			2.49a	6.54	1.67ab	5.25	0.94b	3.90	3.29*
Distracted			5.30b	12.47	7.56ab	14.96	10.53a	19.45	4.45*
Disruptive			0.50b	2.40	0.93b	3.93	4.48a	12.46	12.94***

Note: [a] More than one activity may be coded during one observation.
* $p < .05$. ** $p < .01$. *** $p < .001$.